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Amendments to the Specification

[0059] At step 134, battery power Pbatt is next determined at the selected evaluation input torque, Ti\_n. The following coupling constraint equation is known for the EVT for calculating the motor A and motor B torques:

$$\begin{bmatrix} Ta \\ Tb \end{bmatrix} = \begin{bmatrix} K_{11} & K_{12} & K_{13} & K_{14} \\ K_{21} & K_{22} & K_{23} & K_{24} \end{bmatrix} \begin{bmatrix} Ti \\ To \\ Ni\_dot \\ No\_dot \end{bmatrix}$$

where Ta is motor A speed torque;

Tb is motor B speed torque;

Ti is EVT input speed torque;

To is EVT output speed torque;

Ni\_dot is EVT input acceleration;

No\_dot is EVT output acceleration; and

$K_n$  is a 2x4 matrix of parametric values determined by the hardware gear and shaft interconnections and estimated hardware inertias applicable to the current drive range and represents what is commonly referred to as the plant model.

Additionally, motor speeds are derived from the following known coupling constraint equation:

$$\begin{bmatrix} Na \\ Nb \end{bmatrix} = \begin{bmatrix} K_{11} & K_{12} \\ K_{21} & K_{22} \end{bmatrix} \begin{bmatrix} Ni \\ No \end{bmatrix}$$

where Na is motor A speed;

Nb is motor B speed;

Ni is EVT input speed;

No is EVT output speed; and

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*Kn* is a 2x2 matrix of parametric values determined by the hardware gear and shaft interconnections.

Battery power at the evaluation input torque is determined in accordance with the following relationship:

$$P_{batt} = P_{motor\_A} + P_{loss\_A} + P_{motor\_B} + P_{loss\_B} + P_{loss\_acc}$$

where  $P_{motor\_A}$  and  $P_{motor\_B}$  are unit A and unit B motor power, respectively;

$P_{loss\_A}$  and  $P_{loss\_B}$  are unit A and unit B aggregate motor and power electronics losses (motor losses), respectively; and

$P_{loss\_acc}$  is modeled as a DC load, e.g  $V*I$ , representing battery draw to power accessories or any other load upon the batteries not directly related to the motor units A and B.

Motor powers are determined in accordance with the following relationships:

$$P_{motor\_A} = T_a * N_a \text{, and}$$

$$P_{motor\_B} = T_b * N_b$$

where motor speeds,  $N_a$  and  $N_b$ , and motor torques,  $T_a$  and  $T_b$ , are derived from the two coupling constraint equations shown above.